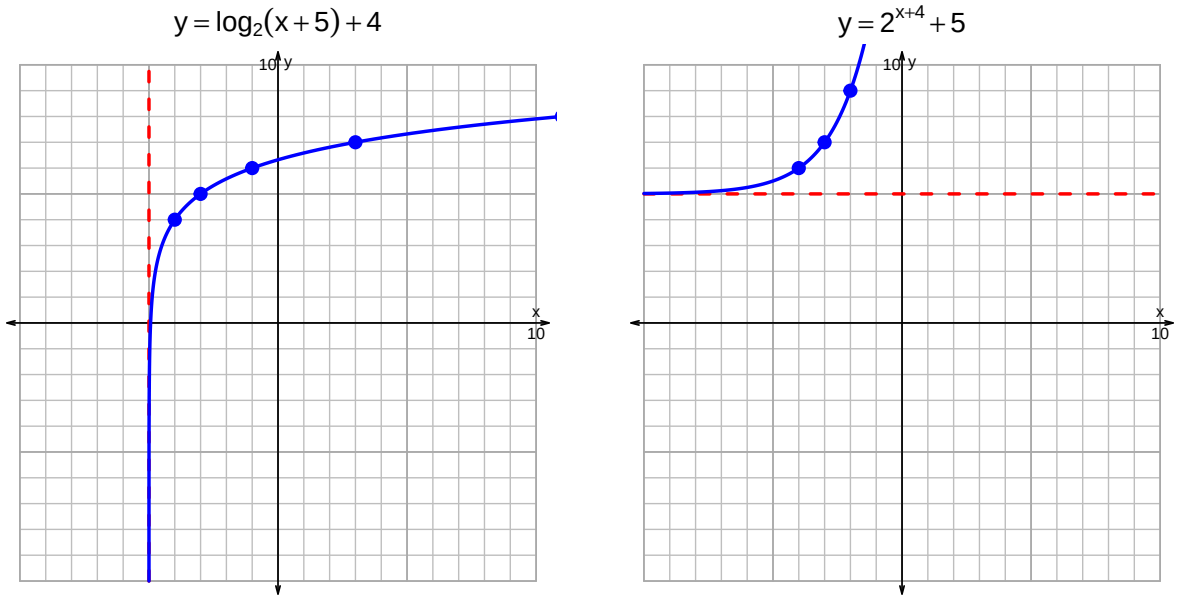
Name: Date:

S18QUIZ: EXP LOG (SOLUTION V7)

1. Graph $y = \log_2(x+5)+4$ and $y = 2^{x+4}+5$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-17 = \left(\frac{-5}{4}\right) \cdot 10^{3t/7}$$

Divide both sides by $\frac{-5}{4}$.

$$\frac{17 \cdot 4}{5} = 10^{3t/7}$$

Take log, base 10, of both sides.

$$\log_{10}\left(\frac{17 \cdot 4}{5}\right) = \frac{3t}{7}$$

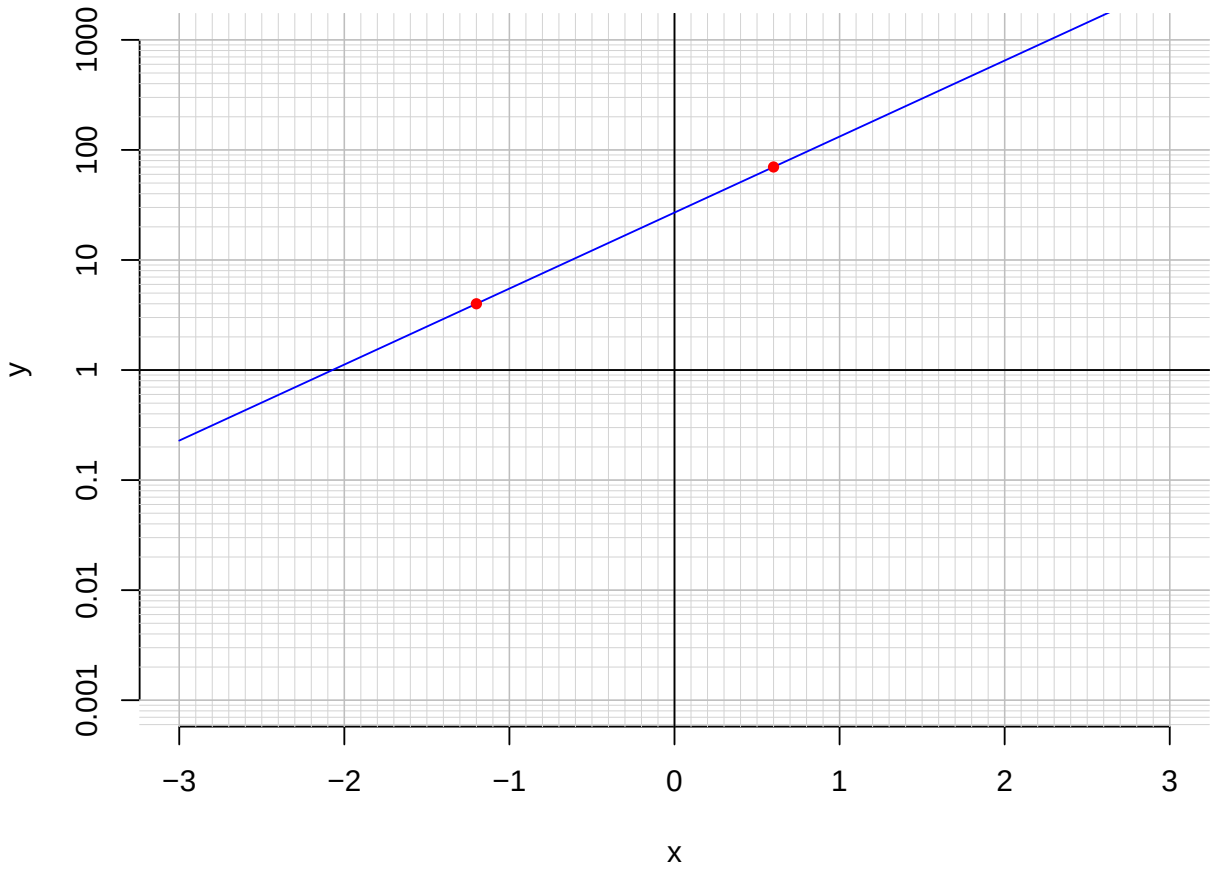
Divide both sides by $\frac{3}{7}$.

$$\frac{7}{3} \cdot \log_{10}\left(\frac{17 \cdot 4}{5}\right) = t$$

Switch sides.

$$t = \frac{7}{3} \cdot \log_{10}\left(\frac{17 \cdot 4}{5}\right)$$

3. An exponential function $f(x) = 27 \cdot e^{1.59x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(0.6)$.

$$f(0.6) = 70$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{1}{1.59} \cdot \ln\left(\frac{x}{27}\right)$$

c. Using the plot above, evaluate $f^{-1}(4)$.

$$f^{-1}(4) = -1.2$$